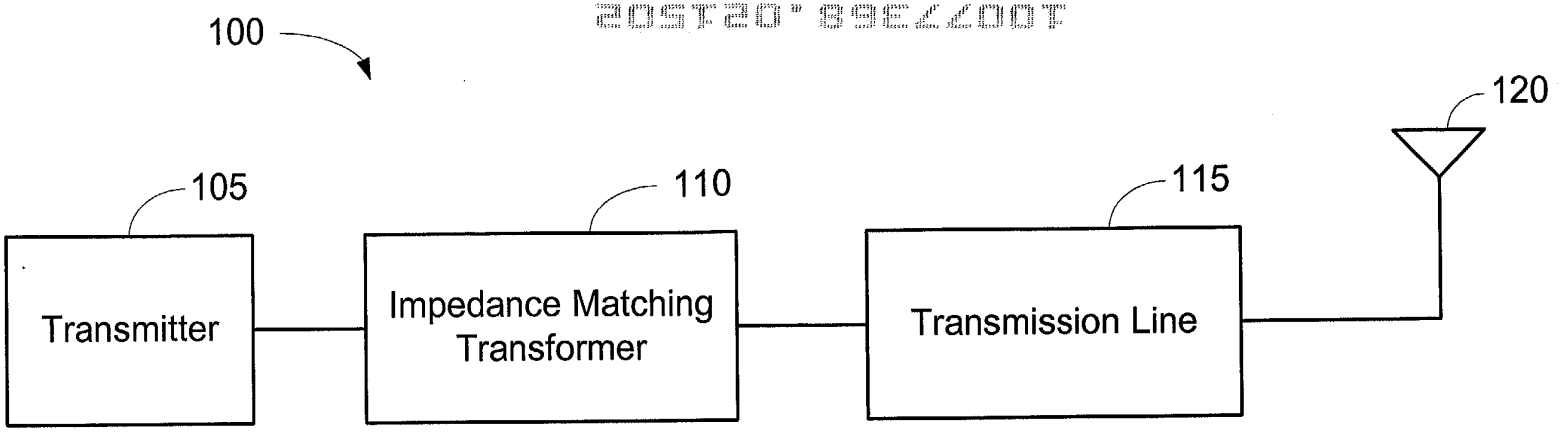

Figure 1

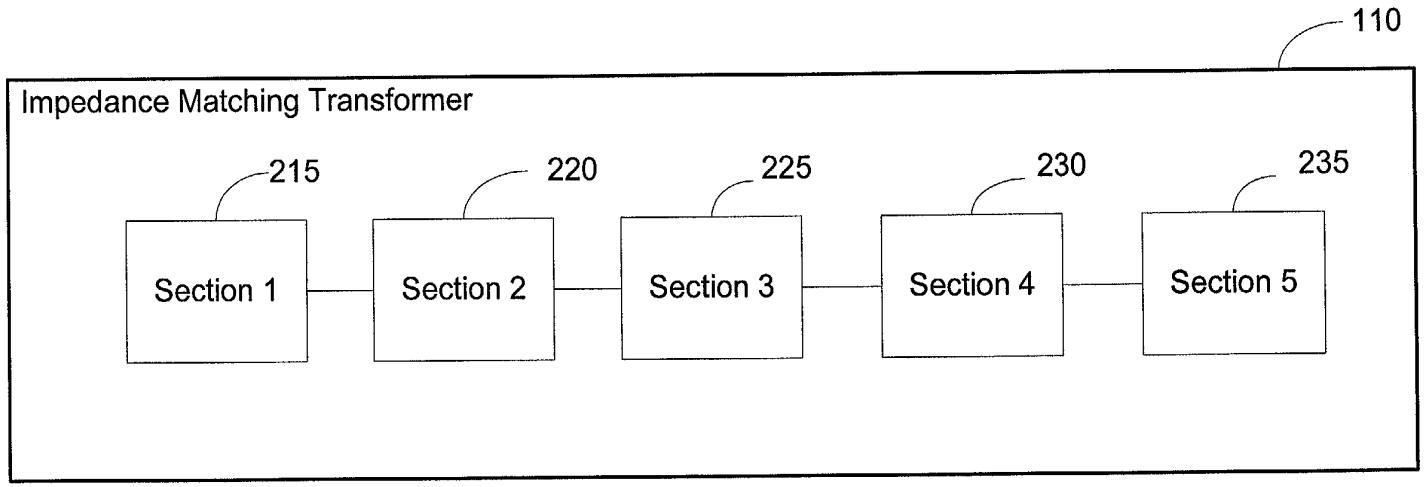

Figure 2

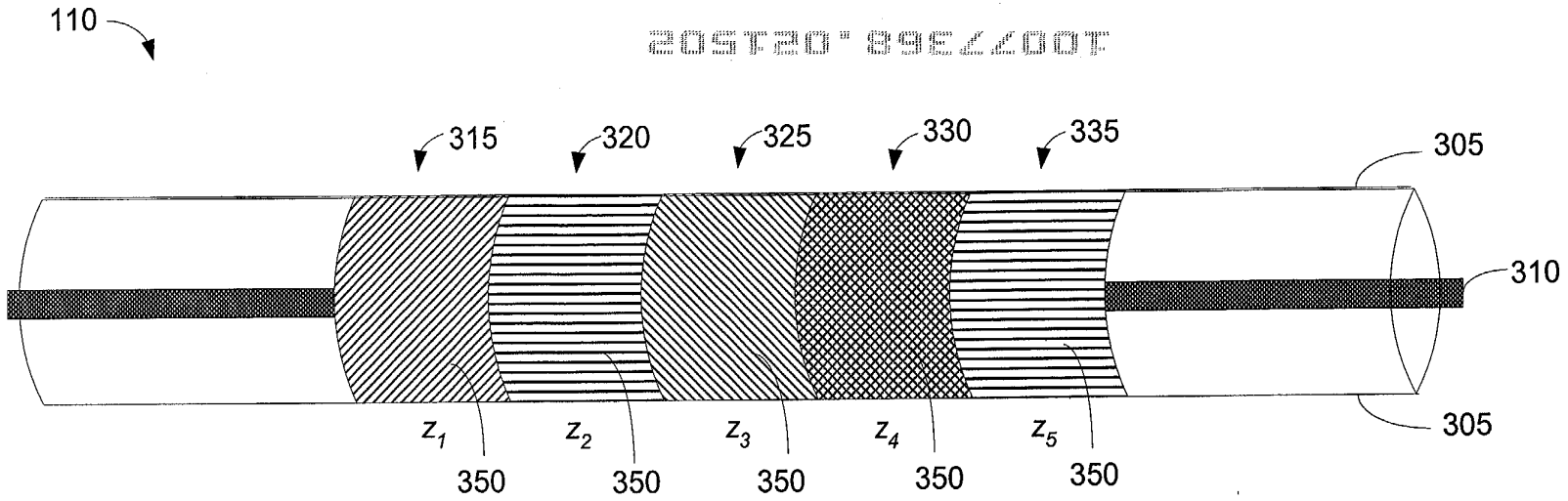

Figure 3A

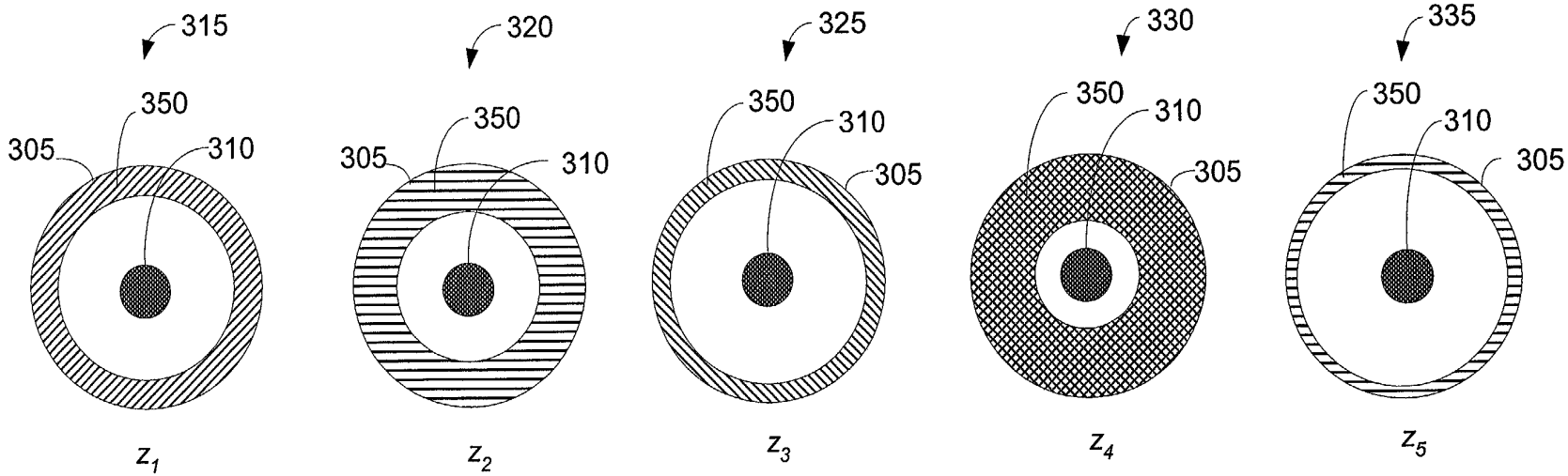

Figure 3B

20ST20" 89E7700T

Table 1 - Normalized "step-down" ratio design criteria

Ratio	Input Z	Section 1	Section 2	Section 3	Section 4	Section 5	Output Z
1.50	1.0	0.376	0.250	1.500	1.500	2.000	0.667
2.00	1.0	0.125	2.000	1.000	0.500	2.000	0.500
2.25	1.0	0.125	1.500	0.334	2.000	1.500	0.444
2.50	1.0	0.150	0.250	1.000	1.500	2.000	0.400
3.00	1.0	0.125	0.250	1.000	1.500	2.000	0.334
3.50	1.0	0.150	0.150	0.750	1.500	2.000	0.286
4.00	1.0	0.125	0.125	2.000	1.500	0.668	0.250
6.00	1 0	0.083	0.125	1.000	1.000	1.500	0.167
8.00	1.0	0 063	0.125	2.000	0 500	0.668	0.125

Table 2 - Normalized "step-up" ratio design criteria

Ratio	Input Z	Section 1	Section 2	Section 3	Section 4	Section 5	Output Z
1.50	0.667	2.000	1.500	1.500	0 250	0.376	1.0
2.00	0 500	2 000	0.500	1.000	2.000	0.125	1.0
2.25	0.444	1 500	2.000	0.333	1 500	0.125	1.0
2.50	0.400	2.000	1 500	1 000	0 250	0 150	1.0
3.00	0.333	2.000	1.500	1.000	0 250	0.125	1.0
3 50	0.286	2.000	1 500	0.750	0 150	0.150	1 0
4 00	0 250	0 668	1 500	2.000	0.125	0.125	1.0
6 00	0 167	1 500	1 000	1.000	0.125	0 083	1.0
8 00	0 125	0 668	0.500	2.000	0.125	0.063	1.0

Figure 4

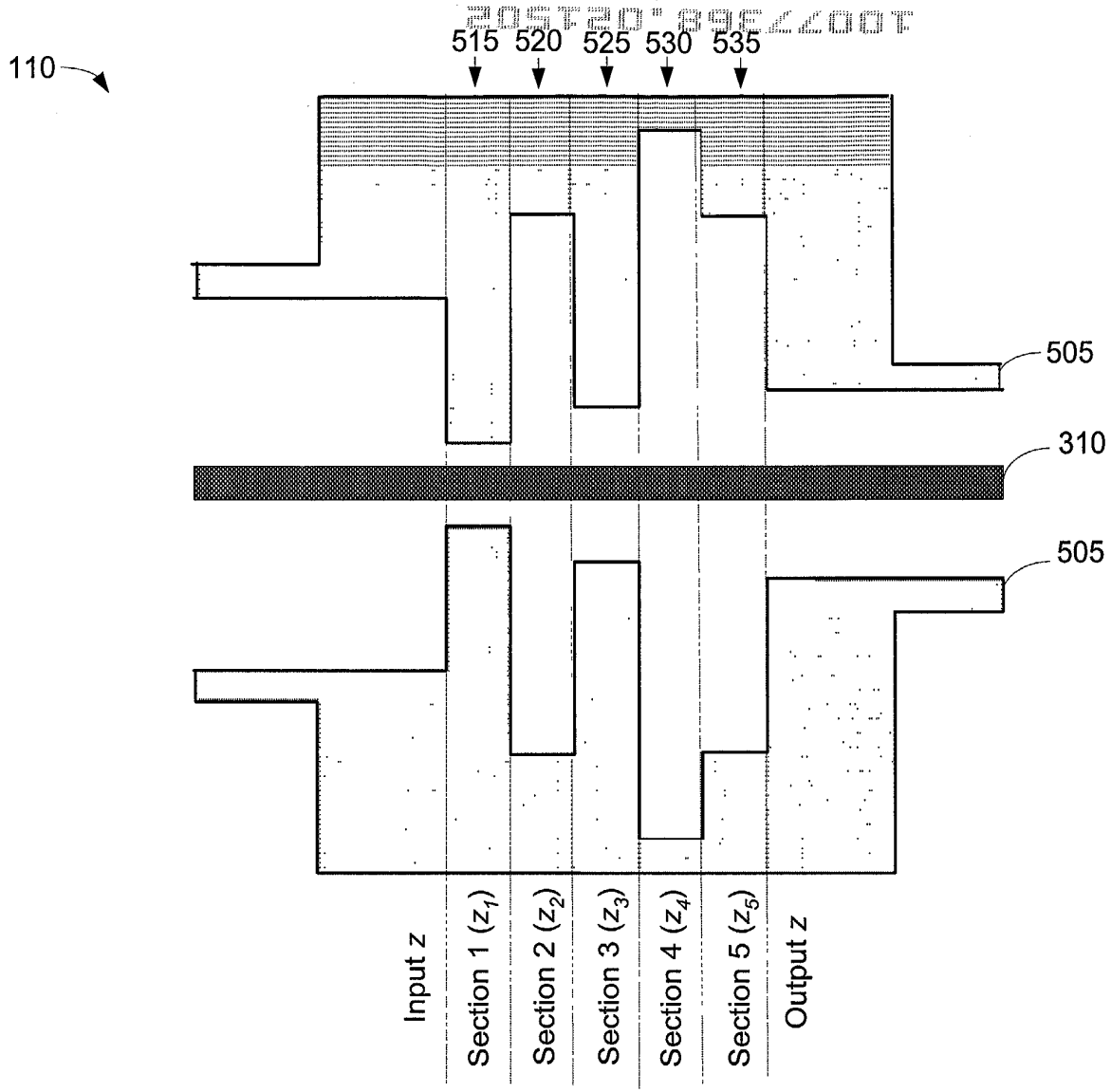
110
515
520
525
530
535
505
310
505
Input z
Section 1 (z_1)
Section 2 (z_2)
Section 3 (z_3)
Section 4 (z_4)
Section 5 (z_5)
Output z

Figure 5

20ST20 89E2Z0BT

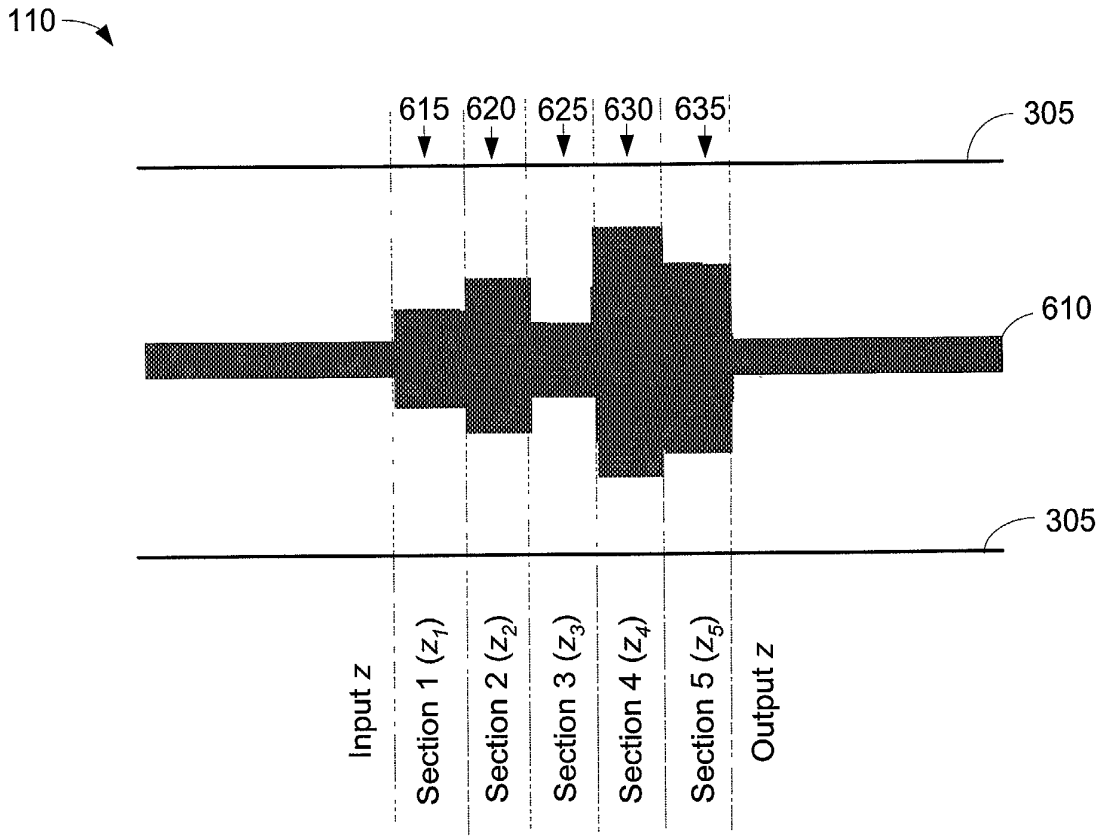

Figure 6

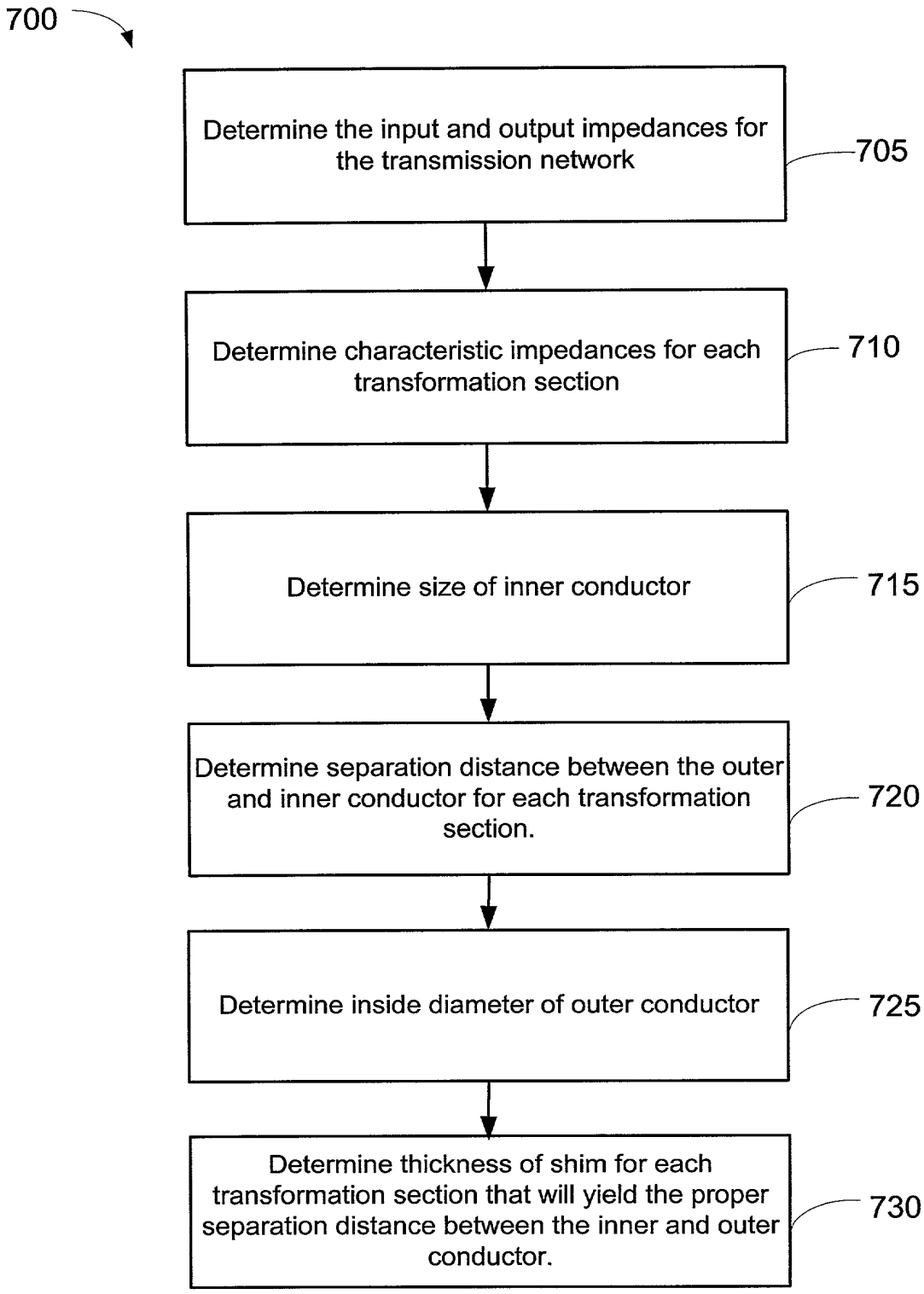
700
Determine the input and output impedances for the transmission network
705
Determine characteristic impedances for each transformation section
710
Determine size of inner conductor
715
Determine separation distance between the outer and inner conductor for each transformation section.
720
Determine inside diameter of outer conductor
725
Determine thickness of shim for each transformation section that will yield the proper separation distance between the inner and outer conductor.
730

Figure 7